

REMARKS/ARGUMENTS

This Amendment is submitted in response to the Office Action mailed October 27, 2010. In this amendment, claim 15, 33-34, and 36 are amended, new claims 63-69 are added, and claim 32 is canceled. Support for the amendments can be found throughout the specification and in at least Figures 1 and 7 and paragraphs [0032]-[0039] and [0060]. After the amendment, claims 15, 28, 31-34, 36-54 and 57-69 are pending in the application. No new matter has been added.

In this amendment, the limitation previously contained in dependent claim 32 is now incorporated into independent claim 15. Therefore, no new search is required.

I. REJECTIONS UNDER § 112, 1ST PARAGRAPH

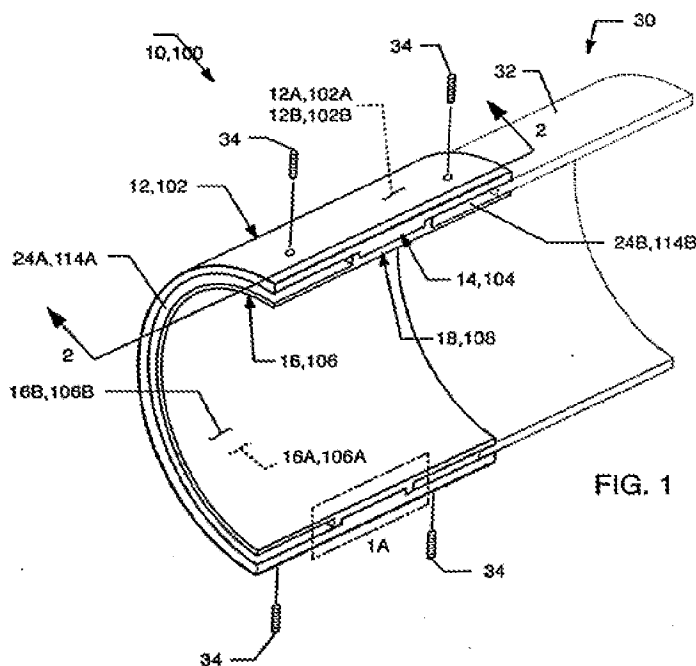
In the Office Action, claim 61 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. Office Action, page 3. Applicants respectfully traverse.

Claim 61 recites: “The duct assembly of claim 15 wherein the apertures are only in the curved section.” The Office Action alleges that claim 61 was not described in the specification in such a way as to reasonably convey to one skilled in the art, at the time of the invention, that Applicants were in possession of the claimed invention. Applicants respectfully disagree.

As argued in the Appeal Brief (filed August 9, 2010), which was not addressed in the current Office Action, paragraphs [0032] and [0060] and Figures 1 and 7 clearly disclose set screws that are located only in the curved section. Specifically, paragraph 32 states:

A plurality of set screws 34 may optionally secure the end portion 32 of the duct section 30 to the slip collar 10,100. As shown in FIG. 1, the formed joint is strong and leakproof. The set screws 34 are useful when the adhesive sealant compositions are curing. For example, an adhesive composition that is produced from a material such as ChemBond™ commercially available from ATS Products, Inc. of Richmond, CA may be applied to the walls defining the slot regions with a tongue depressor or squeegee. The end of the ducts that 30 will be inserted into the slot regions may also be coated

Figure 1 illustrates an embodiment where set screws are only in the curved section:



Cone shaped set-screws 306 (or other attachment elements) can be used to hold the duct section 308 in position until any adhesive that is present in the slot region at the first end 320 of the slip collar 310 cures. It is possible to start off with 3 set-screws for the smaller diameter duct sections. The number of set screws may be increased as the diameters increase.

Page 9 of 21

II. REJECTIONS UNDER § 103

A. **Independent claims 15 and 36 are not obvious in light of the alleged combination of van Vliet, Shea, Jacobson, Thomas, and Williams.**

In the Office Action, claims 15, 28, 33, 34, 36-39, 41, 44, 46-54, and 59-61 were rejected under 35 U.S.C. 103(a) as being obvious over van Vliet (US 4,099,749) in view of Shea (US 5,383,994), Jacobson (US 6,213,522), and Thomas (US 4,669,177). Claim 32 was rejected under 35 U.S.C. 103(a) as being obvious over van Vliet, Shea, Jacobson, Thomas, and in further view of Williams (US 5,961,154). Applicants respectfully traverse these rejections.

1. **The alleged combination of van Vliet, Shea, Jacobson, Thomas, and Williams relies on improper hindsight.**

To expedite prosecution, claim 15 has been amended to recite the limitation previously contained in dependent claim 32. Claim 36 has been amended to recite a somewhat similar limitation.

The obviousness rejection must combine no less than **five (5) references** (van Vliet, Shea, Jacobson, Thomas, and Williams) to reject the invention of even the broadest claim. Applicants submit that the rejections of record are erroneous and rely on improper hindsight. *See KSR International Co. v. Teleflex Inc.*: 82 USPQ2d 1385 (2007) (“A factfinder should be aware, of course, of the distortion caused by hindsight bias and must be cautious of arguments reliant upon ex post reasoning.”). Here, the Office Action used improper hindsight to van Vliet, Shea, Jacobson, Williams, and Thomas. According to the Court of Appeals for the Federal Circuit:

“It is difficult but necessary that the decisionmaker forget what he or she has been taught . . . about the claimed invention and cast the mind back to the time the invention was made (often as here many years), to occupy the mind of one skilled in the art who is presented only with the references, and who is normally guided by the then-accepted wisdom in the art.” *W.L. Gore & Associates, Inc. v. Garlock, Inc.*, 721 F.2d 1540, 220 USPQ 303, 313 (Fed. Cir. 1983).

Here, one viewing only van Vliet, Shea, Jacobson, Thomas, and Williams would not have combined them in the manner alleged in the Office Action absent improper hindsight.

van Vliet is entitled “Coupling Sleeve.” It describes a coupling member for coupling two sheet metal channels together for using in an air circulation of air conditioning system.

Shea is entitled “Method for Making a Double Wall Fire Proof Duct.” It describes ductwork made out of several layers of fire and corrosion resistant materials. Jacobson is entitled “Device for Securing Adjacent segments of Fibrous Glass Duct Work.” It describes connecting fibrous glass ducts that use teeth-like protrusions.

Jacobson is entitled “Device for Securing Adjacent Segments of Fibrous Glass Duct Work.” It describes a device for joining fibrous glass duct board.

Thomas is entitled “Positionable Flanged Wall Pipe For Masonry Wall Installation.” It describes a separate and positionable flange member is used for connecting wall pipe to a masonry wall.

Williams is entitled “Fume Duct Joint With Claiming Collar.” It describes a internal sleeve, a clamp, and bolts used to join ductwork.

Clearly, one viewing only van Vliet, Shea, Jacobson, Thomas, and Williams would not have combined these references in the manner proposed in the Office Action, unless he had had the benefit of looking at Applicants’ specification first. For example, in rejecting claim 15, the Office Action essentially asserts that it would have been “obvious” for one to have: (1) looked to van Vliet, which describes a coupling sleeve for use in heating and air conditioning; (2) decided that the van Vliet’s coupling sleeve should be made of a “fiber reinforced material”; (3) extracted a teaching of “fiberglass reinforced plastic” from Shea, when Shea describes the composition of duct section, not duct joints; (4) decided that the combination of van Vliet and Shea should be further modified by Jacobson, which does not even show “a curved section including apertures” wherein “the screws are disposed in the apertures,” as asserted by the Office Action; (5) then looked to Thomas, which shows “set screws” in a completely different context (i.e., a separate and positionable flange member is used for connecting wall pipe to a masonry wall).

This combination would have to ignore van Vliet’s express requirement that the “construction is simple” and that the “aim” of van Vliet’s invention was to **avoid the use of**

“screw bolts, rivets, welded joints etc.” Col. 1, lines 5-16. One of skill in the art would not have modified van Vliet, as alleged in the Office Action. van Vliet uses a “sleeve” in conjunction with a “loose resilient strip having a plurality of upwardly and downwardly obliquely protruding teeth formed integrally from said strip.” Abstract; Fig. 4. The sleeve and the strip have teeth that face in opposite directions and the “teeth ... engage and lock said duct element to said coupling sleeve.” *Id.* van Vliet explicitly avoided using “screws” so that the coupling sleeve was more simple.

Finally, then one would have had to (6) look to Williams for the recited sizes of the outer wall portion. Clearly, this proposed sequence of events is illogical and would not have been “obvious” to a person of skill in the art at the time of the invention by looking only at van Vliet, Shea, Jacobson, Thomas, and Williams, without looking at Applicants’ disclosure. Rather, the proposed sequence of events could have only resulted from improper hindsight in view of Applicants’ disclosure, picking and choosing isolated disclosures from the prior art to meet the claims without regard to what the prior art actually teaches or suggests.

The combination of four references alleged in the Office Action would not have been made without looking at Applicants’ disclosure first. Since the alleged combination would not have been made without knowledge of Applicants’ specification, the rejection is based on improper hindsight. For at least this reason, Applicants submit that the Office Action failed to meet its burden to support the legal conclusion of obviousness with respect to claims 15 and those dependent thereon.

2. The Williams fails to cure the missing admittedly missing limitation.

The Office Action acknowledges that van Vliet, Shea, Jacobson, and Thomas do not teach or suggest that the thickness of the outer wall portion of the coupling sleeve is between 3/16” to 1½”. Office Action, page 9. To supply this admittedly missing limitation, the Office Action relies on Williams (column 7, lines 18-24).

Williams, however, describes a completely different attaching means that is made from a completely different material. First, Williams is directed to a duct joint with a “clamping collar.” The present invention is directed to a slip collar. Second, the clamping collar includes

“outer skins [that] are fabricated from stainless steel plate having a minimum thickness of about 0.050-inch and a maximum thickness of about 0.141-inch,” and “inner skins [that] are fabricated from stainless steel plate having a minimum thickness of about 0.012-inch and a maximum thickness of about 0.037-inch.” The claimed slip collar embodiment here comprises fiber-reinforced plastic, and, as discussed in the specification, metal materials are prone to corrosion and leakage. *See* Specification, paragraph [0025] (“Fiber reinforced plastic slip collars are desirable, since they are more universally adaptable to different chemicals than metal slip collars. For example, a metal slip collar may corrode when exposed to certain acids, whereas a plastic slip collar may not corrode as easily when exposed to the same acids.”).

Therefore, one would not have taken the sizes disclosed in Williams and combined the teachings with van Vliet, Shea, Jacobson, and Thomas.

B. Even if the Office Action had showed a *prima facie* case of obviousness for independent claims 15 and 36, Applicants have submitted adequate evidence to rebut the conclusion of obviousness.

Applicants have also submitted additional evidence of non-obviousness in the form of previously filed 37 C.F.R. 1.132 Declarations of Jeff Shea, as filed on June 28, 2007 (“the First Shea Declaration”) and October 9, 2007 (“the Second Shea Declaration”), and Joe Plecnik, as filed on March 1, 2006 (“the Plecnik Declaration”). Even assuming, *arguendo*, that the claims are *prima facie* obvious in view of the cited references, Applicants submit that the Declarations provide sufficient evidence to rebut any allegation of obviousness. In each of the Office Actions dated December 8, 2009 and March 25, 2009, the Office Action does not address the Shea and Plecnik Declarations as evidence of non-obviousness. The declarations are sufficient to overcome any alleged *prima facie* case of obviousness because they provide evidence of (1) commercial success; (2) non-obvious advantages over the prior art, and (3) long-felt need for the claimed invention.

i. Commercial Success

Commercial success of products falling within the claims of the patent that flow from the functions and advantages disclosed or inherent in the description in the specification is

pertinent to the issue of non-obviousness. *In re Vamco Machine & Tool, Inc.*, 752 F.2d 1564, 224 USPQ 617 (Fed. Cir. 1985). It is clear that the commercial success is due to the many structural and economic advantages of the claimed invention. Specifically, the First and Second Declarations of Jeff Shea show the commercial success of a product embodying claimed features of the invention and provide a nexus between the success and the invention. According to MPEP § 716.03(b)IV, objective evidence must be provided showing specific commercial success with relation to market evidence such as market share, time period during which sold, or what sales would normally be expected in the market. The First and Second Shea Declarations demonstrate that sales of ATS Products' H-Collar™ line of joint products made according to embodiments of the claimed invention have increased significantly since their introduction (First Shea Declaration, paragraph 4; and Second Shea Declaration, paragraph 6), and that the increase is not due to the ATS Products' dominant market share or extensive marketing efforts. (Second Shea Declaration, paragraph 4; First Shea Declaration, paragraph 7.) Rather, the First and Second Shea Declarations show that increase in sales of the H-Collar™ line of joint products is due to the technical advantages and inventive features of the claimed invention. (Second Shea Declaration, paragraphs 5 and 7.)

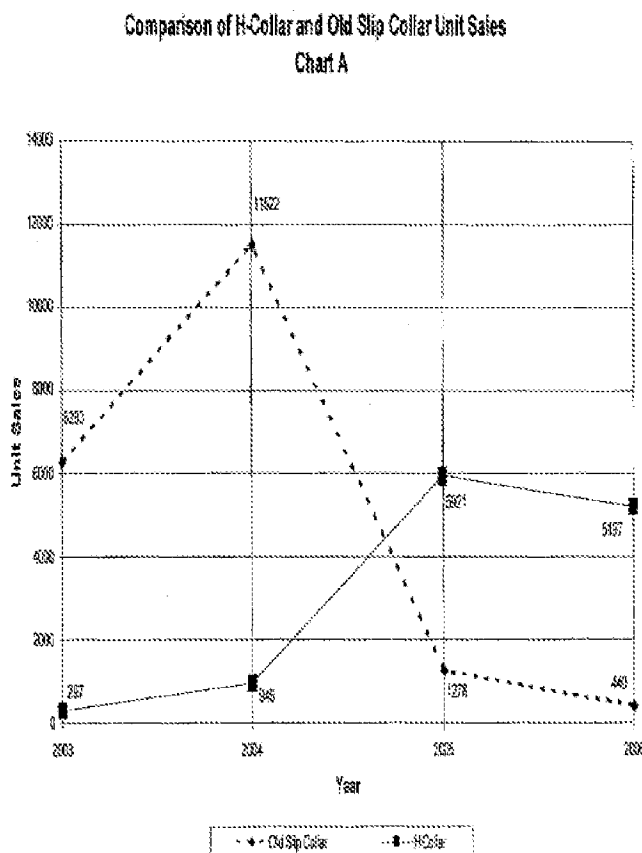
Specifically, the First Shea Declaration states the pending claims cover ATS Products' H-Collars™ line of joint products, and that “many of the features recited in the claims are responsible for the commercial success of the product.” *Id.* ¶5. “[C]ustomer contractors have indicated that the ease and speed of installation and reliability of the resulting ductwork using the H-Collar™ joint products have allowed them to increase their productivity and profitability and that they are willing to pay a premium for such advantages.” *Id.* More specifically, paragraph 4 of the First Shea Declaration shows the sales growth due to some of the claimed features of the embodiments in the H-Collar™ line of joint products:

Since 2003, ATS has sold more than 16,850 H-Collar™ so Sales have grown from about 367 units in 2003, to about 946 units in 2004, to about 5,921 units in 2005 and about 5,197 units in 2006. Approximately 4435 H-Collar™s have been sold in 2007 as of the date of this declaration. I believe that these sales are unexpectedly good in the duct industry.

The Second Shea Declaration ties these gross sales figures to (1) the time period when the product was sold, (2) what sales would normally be expected, and (3) market share – even though MPEP 716.03(b)IV only requires one of these three alternatives. First, as to the time period when the sales were made, paragraph 6 states:

These sales accompany the sales of fiber reinforced duct and other products necessary to install duct assemblies in semiconductor and other facilities that require light weight, yet chemical and fire resistant exhaust duct. This increase is in contrast to the decline in sales of ATS's old slip collar joint products, which represent a more traditional approach to duct joints. Between 2004 and 2006, sales of the old slip collar dropped from approximately 11,500 units annually to merely 440 units annually. (See Chart A).

Chart A of the Second Shea Declaration is reproduced below:



Second, as to what sales would normally be expected (i.e., sales of products embodying the old technology), paragraph 7 of the Second Shea Declaration states:

ATS has experienced an increase in H-Collar™ sales despite the availability of more dominant and traditional joining methods, similar to ATS's old slip collar (an example of which is shown as element 60 in U.S. Patent No. 5,961,154), that use less expensive collars but require significantly more time and labor. I believe that this shows that consumers recognize that the H-Collar™ has technical advantages over ATS's old slip collar.

Third, as to market share, paragraph 4 of the Second Shea Declaration states:

I believe that ATS fiber reinforced plastic duct and joint products account for less than 10-20% of all sales to this market sector. I further believe that the other 80% - 90% of the market is occupied by approximately 20-30 other manufacturers who provide various types of coated metal ducts. I believe that ATS does not occupy a dominant market position in the fire safe duct market and that there are other options for fire safe joints and duct assemblies that are available.

Additionally, paragraph 7 of the First Shea Declaration provides evidence that the commercial success was due to the inventive features of the H-Collar™ joint products, not extensive marketing efforts:

I also do not believe that the commercial success of the H-Collar™ joint products is due to extensive marketing efforts on behalf of ATS, but was rather due to the claimed inventive features of the H-Collar™ joint products.

As such, Applicants have demonstrated that the claimed features of the invention, as embodied in the H-Collars™, are responsible for the commercial success and have rebutted any alleged *prima facie* case of obviousness.

ii. Advantages over the cited references

The Plecnik Declaration, as well as the First and Second Shea Declarations, provide evidence that the embodiments of the claimed invention provide for non-obvious structural differences from and economic advantages over the duct assembly of the prior art. Dr. Plecnik provides third party expert evidence of structural advantages of the claimed invention.

As evidenced by the Plecnik Declaration, embodiments of the invention provide for a number of non-obvious advantages over the prior art cited. These advantages include more efficient and less costly duct assembly procedures, as well as stronger joints. For example, in paragraphs 5-8, Dr. Plecnik states the following:

5. I believe that the slip collar that is described in the present application has a number of advantages. Some advantages are provided at paragraph [0027] of the present application. Paragraph [0027] states:

The slip collars according to embodiments of the invention are especially useful for joining ducts. As explained below, in preferred embodiments of the invention, an adhesive composition can be deposited in the first and second slot regions, and two sections of duct can be joined quickly and accurately, without the need for extensive aligning of the duct sections. Thus, slip collars according to embodiments of the invention can be used to “self-align” two adjacent duct sections. In addition, the joint that is formed between connected duct sections is strong and can have fire resistance and chemical resistance. The slip collars include both inner and outer wall portions. They provide [for better] joint strength and for a better barrier for fumes than slip collars that are made from only a single layer of material. For example, in order for a gas inside of a duct assembly to leak from the interior to the exterior, a gas would have to traverse through the two wall portions of the slip collar and the walls of the duct sections that are being joined. Also, by using the slip collars according to embodiments of the invention, ductwork can be installed quickly and accurately. A duct network that is formed using the slip collars according to embodiments of the invention will be strong and reliable. Although slip collars for ducts are described in detail, embodiments of the invention may be used to join other types of tubular articles such as two sections of pipe.

I believe that these advantages make the slip collar described in the present application better than the duct joint described in Williams. Further advantages of the slip collar described in the present application over the duct joint described in Williams are provided below.

6. I believe that it takes less time to assemble ducts using the slip collar described in the present application, than the duct joint described in Williams. To join two duct sections together in Williams, slip collar 60,

as shown in FIG. 4 of the Williams patent, is coated with an adhesive. As shown in FIG. 5 of the Williams patent, the duct sections are then joined to the adhesively coated slip collar 60. A sealant 84 is then coated on the joined duct sections. Once joined, outer clamp portions 22, 24 are assembled around the slip collar 60 using bolts 50 (see FIG. 5). It is apparent that the process described in Williams uses at least six separate process steps. Compared to the Williams process which uses at least six process steps to form a duct joint, the slip collar that is described in the present application can use three or four process steps to form a duct joint. The slip collar that is described in the present patent application is a one-piece structure. The one-piece structure has slot regions and these regions can be coated with an adhesive. Once surfaces of the slip collar defining the slot region are coated, the two duct sections are inserted into the slot regions. Optional set screws may be used to secure the slip collar to the joined duct sections. Thus, the slip collar that is described in the present application can be used to form a joint more quickly than the components described in Williams. Consequently, significant amounts of time, labor, and money can be saved using the slip collar that is described in the present application, as compared to the duct joint that is described in Williams.

7. The resulting duct joint that is formed when using the slip collar described in the present application is stronger than the duct joint that is formed in Williams. Duct joints are often the weakest points of any duct system, and it is desirable to make sure that these weak points are as strong as possible. The duct joint described in Williams has multiple parts including an inner slip collar 60 and outer clamp portions which are joined by bolts 50 and adhesive layers. The regions where these multiple parts are joined can potentially fail. In comparison, the slip collar that is described in the present application is a one-piece structure and does not have joining regions like those described in Williams. I believe that the slip collar that is described in the present application is stronger and is less prone to failure than the duct joint described in Williams.

8. In summary, I believe that the slip collar that is described in the present application is not shown or suggested by Williams, and that the slip collar that is described in the present application has a number of advantages over the duct joint that is described in Williams.

Additionally, the First and Second Shea Declaration also provide for a number of non-obvious advantages over the prior art cited, such as the efficiency gains by not having to

wrap the joint with external wrapping. Specifically, paragraphs 3 and 6 of the First Shea Declaration state:

The H-Collar™ line of joint products provide contiguous internal corrosion resistant liners and an alignment tool for joining corrosion and fire resistant duct and pipe in critical applications while also reducing installation time. Installation of duct or pipe work using the H-Collar™ joint products only requires application of an adhesive and inserting the duct into the collar. There is no need for additional external wrapping of the joint.

* * *

The H-Collar™ joint products are intended to provide a contiguous internal liner as well as a built-in alignment tool with no need for complicated processes or multi-part components to join two sections of duct. Prior to the introduction of H-Collar™ joint products, ATS offered its Internal Beaded Slip Collar™ joint products. Internal Beaded Slip Collar™ joint products are similar to structure 60 in FIG. 2 of the Williams patent assigned to ATS. (See Williams, United States patent number 5,961,154). Like the duct assembly in Williams, duct assemblies made with Internal Beaded Slip Collar™ joint products require multiple steps and separate external parts to ensure reliably sealed and structurally sound joints. As a result, installations of ducts using Internal Beaded Slip Collar™ joint products take considerably more time and are less reliable than installations of ducts using H-Collar Slip Collar™ joint products.

Paragraph 5 of the Second Shea Declaration continues:

The H-Collar™ was introduced in 2003 to allow contractors to install ATS duct without the need to do exterior wrapping of joints. Connecting joints in an expeditious and vapor-tight manner is of critical importance in semiconductor duct installations where cost and protection of personnel, processes and equipment are major concerns. Time and labor in ensuring a vapor-tight seal at each joint are major portions of the cost of duct installation. Use of the H-Collar™ in duct assemblies provides reliable joints that are easier and faster to install than other previous and contemporary techniques in such critical installations.

Accordingly, in view of the evidence of advantages of the claimed invention over the prior art provided in the Plecnik Declaration and the First and Second Shea Declarations, Applicants have rebutted any alleged *prima facie* case of obviousness.

iii. Long-Felt Need

Finally, paragraph 7 of the First Shea Declaration provides evidence of a long-felt need for duct joint products, such as H-Collar™ joint products, embodying the claimed invention:

I also believe that the H-Collar™ joint products helped to satisfy a long felt need. Previously, contractors had to spend much time fitting and joining ductwork with complicated multi-part and multi-step joint products which required careful and onerous alignment, fastening and sealing. Such extended installation procedures limited the amount of ductwork that installers could install on a given day, thus limiting their total annual job capacity. H-Collar™ joint products address this long felt need by allowing installers to more easily and quickly align, fasten and seal sections of ductwork in minutes.

Dr. Plecnik's declaration also supports the proposition that it "takes less time to assemble ducts using the slip collar described in the present application" than the slip collars in the prior art. Accordingly, in view of the evidence of long-felt need of the claimed invention over the prior art provided in the Shea Declarations and the Plecnik Declaration, Applicants have rebutted any alleged *prima facie* case of obviousness.

C. Dependent claims are not obvious in view of the cited art

In the Office Action, Claim 40 was rejected under 35 U.S.C. 103(a) as being obvious over van Vliet in view of Shea, Jacobson and Thomas, as applied to Claim 36, and further in view of Nishio (US 6,045,164). Claim 45 was rejected under 35 U.S.C. 103(a) as being obvious over van Vliet in view of Shea, Jacobson and Thomas, as applied to Claim 36, and further in view of Narukawa (US 4,433,020). Claims 31, 32, 42, 43, 57, and 58 were rejected under 35 U.S.C. 103(a) as being obvious over van Vliet, Shea, Jacobson, Thomas, and Williams.

Applicants respectfully traverse these rejections. Each of the dependent claims properly depend from an allowable independent claim. For the reasons discussed above, obviousness has not been established for independent claims 15 or 36. Similarly, obviousness has not been established for any of the dependent claims because each respective claim recites additional limitations that are not disclosed or suggested by the cited references. Accordingly, withdrawal of the rejection of these claims is respectfully requested.

CONCLUSION

In view of the foregoing, Applicants believe all claims now pending in this Application are in condition for allowance. The issuance of a formal Notice of Allowance at an early date is respectfully requested.

Further, the Commissioner is hereby authorized to charge any additional fees or credit any overpayment in connection with this paper to Deposit Account No. 20-1430.

If the Examiner believes a telephone conference would expedite prosecution of this application, please telephone the undersigned at 415-576-0200.

Respectfully submitted,

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